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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/744,746	01/29/2001	Hisayoshi Fujimoto	KIX0130-PCT	3489

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EXAMINER

LEE, CHEUKFAN

ART UNIT PAPER NUMBER

2622

DATE MAILED: 10/04/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/744,746	FUJIMOTO ET AL.	
	Examiner	Art Unit	
	Cheukfan Lee	2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-8 and 11-14 is/are rejected.
- 7) ☒ Claim(s) 9 and 10 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 January 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 1/29/01 & 2/14/02.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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1. Claims 1-14 are pending. Claims 1 and 14 are independent.
2. The specification is objected to because page 28, line 3 recites "Fig. 19". There is no Fig. 19 in the drawings.
3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.
4. Claims 1-3, 6-8, and 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over PCT Publication No. WO98/05158, published Feb. 5, 1998, in view of Onishi et al. (U.S. Patent No. 6,469,808). WO98/05158, which in Japanese Language, has a corresponding U.S. patent, Patent No. 6,222,581 to Fujimoto et al. For the purpose of this rejection, the U.S. Patent is relied on for the English language specification.

Regarding claims 1 and 14, WO98/05158 (hereinafter referred to Fujimoto et al.) discloses all subject matter claimed, except for the one connector provided on the substrate for electrically connecting each of the reading circuit, the printing elements and the writing circuit.

Note that in the image reading/writing head (1 in Fig. 2) of the image processing apparatus of Fujimoto et al. (col. 1, lines 10-20), the case (2) is assembled to the substrate (7) and encloses the light receiving elements (10) included in the reading circuit (10), the transparent cover (5) for supporting an original document D is considered opposed to the substrate (7), the light source (8) is disposed within the case for illuminating the document, the lenses (12) focuses light reflected from the document onto the light receiving elements (10), the light receiving elements (10), writing circuit (11), and printing elements (9) are provided on a same surface of the substrate (7), and connectors (23, 24) provided at the substrate electrically connect with each of the reading circuit, the printing elements and the writing circuit (Figs. 2 and 3, col. 6, line 45 – col. 8, line 51).

Fujimoto et al. differs from the claimed invention in that Fujimoto et al. employs two connectors (23 and 24) instead of one on the substrate for connecting with each of the reading circuit, the printing elements and the writing circuit.

Onishi et al. discloses an image reading head (Figs. 18 and 19) having a case (1'), a transparent cover (2'), a light source (6), lenses (3'), and reading elements/circuit including light receiving elements (7'), and a substrate (5'), wherein the light source (6) and the reading circuit (7') are provided on the same surface of the substrate, and the substrate is provided with one connector (50' in Fig. 18) electrically connected with each of the light source (6) and the reading circuit or elements (7').

Onishi et al. teaches connecting a single connector with a plurality of devices. The claimed invention employs a one connector electrically connected with a plurality of devices.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide the substrate (7) of Fujimoto et al. with a single connector instead of two connectors as taught by Onishi et al. to simplify the connection feature.

Regarding claims 2 and 3, the substrate (7) of Fujimoto et al. has a lower right edge portion as viewed in Fig. 2 and uncovered by and on a side of the case, the lower edge portion extending in the horizontal (predetermined) direction, the printing elements (9) being mounted on this uncovered part. According to Fig. 18 of Onishi et al., the connector (50') is attached to a side and end edge portion of the substrate (5'). With the idea of both Fujimoto et al. and Onishi of making the head compact, it would have been obvious to one of ordinary skill in the art at the time the invention was made to attach the connector to a side and end edge portion of the substrate (5'), which is other than the edge portion of the substrate on which the printing elements (9) are mounted.

Regarding claim 6, see sensor IC's (10) (Fig. 3 and Fig. 6, col. 9, line 20+) and writing (drive) IC's (11) (Fig. 3 and Fig. 8, col. 10, line 47+).

Regarding claim 7, see integrated reading/writing circuit (10) (Figs. 11-15, col. 13, line 47 – col. 14, line 50).

Regarding claim 8, according to Fig. 12 of Fujimoto et al., each of the IC chips of the integrated reading/writing circuit (10) is oblong rectangular having a first edge portion and a second edge portion each extending in a the longitudinal direction. It is inherent that one of the edge portions is provided with the light receiving elements in a row, and the other edge portion is provided with a plurality of electrode pads for connection with the heating elements, since the writing part of the IC chip is for controlling the heating or printing element(s).

Regarding claim 11, the printing elements (9) of Fujimoto et al. are heating elements.

Regarding claim 12, as discussed for claim 1 above, the light source is disposed on the surface of the substrate (7) of Fujimoto et al. where the light receiving elements and heating elements are disposed.

Regarding claim 13, the connector discussed for claim 1 above is inherently electrically connected with the light source (col.

5. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over PCT Publication No. WO98/05158, published Feb. 5, 1998, in view of Onishi et al. (U.S. Patent No. 6,469,808) and well known art.

WO98/05158, which in Japanese Language, has a corresponding U.S. patent, Patent No. 6,222,581 to Fujimoto et al. For the purpose of this rejection, the U.S. Patent is relied on for the English language specification.

Regarding claim 5, Fujimoto et al. in view of Onishi et al. is discussed for claim 1 above. Fujimoto et al. does not seem to disclose two separate grounding wirings on the substrate the reading circuit and the writing circuit (Figs. 6 and 8, col. 9, line 18 – col. 10, line 65, also Figs. 14 and 15, col. 13, line 62 – col. 14, line 54). However, such idea of having separate grounding wiring for different circuits is not novel. The examiner took Official Notice of the fact that using separate grounding wiring for different circuits, especially when the circuits are provided closed to one another or on the same substrate, to avoid influence from signals input to or output from the circuits in order to protect the circuits are well known in the art. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use a grounding wiring for the reading circuit and a separate grounding wiring for the writing circuit to protect the circuits.

6. Claims 4, 9, and 10 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is an examiner's statement of reasons for allowance:

Claim 4 would be allowable because none of the prior art of record, including Fujimoto et al. and Onishi et al. discussed above, teaches in addition to the connector being attached to a longitudinal center portion in the second edge portion of the substrate, the specific wiring features claimed.

Claims 9 and 10 would be allowable because the closest prior art does not teach the claimed specifics on how the electrode pads are disposed relative to the row of the light receiving elements and relative to the two longitudinal edge portions (of the second portion) provided with a plurality of signal pads for signal input and output.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Fujimoto et al. (U.S. Patent No. 6,448,995) discloses an image read/write head and image processing apparatus incorporating the same. This patent corresponds to PCT Publication No. WO99/63748, published December 9, 1999.

Imamura (U.S. Patent No. 5,570,122) discloses a combined read and print head.

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Fujimoto et al (U.S. Patent No. 6,166,832) discloses a contact-type image sensor having a single connector electrically connected to a plurality of devices provided on the sensor substrate.

Fujimoto et al (U.S. Patent No. 5,859,421) discloses a contact-type image sensor having a single connector electrically connected to a plurality of devices provided on the sensor substrate.

The following prior art references disclose mounting a light source and an image sensor array on the same substrate:

Sawase et al. (U.S. Patent No. 6,014,231)

Imamura (U.S. Patent No. 5,579,114)

Ogura et al. (U.S. Patent No. 6,295,141)

Lee et al. (U.S. Patent No. 5,780,840)

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Cheukfan Lee whose telephone number is (703) 305-4867. The examiner can normally be reached on 9:30 a.m. to 6:00 p.m., Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (703) 305-4712. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Cheukfan Lee
September 23, 2004


Cheukfan Lee